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TECHNICAL MEMORANDUM
Utah Coal Regulatory Program

May 5, 2011

TO: Internal File

THRU: Daron Haddock, Permit Supervisor

FROM: James Owen, Engineer and Team Lead

RE: Change to Year 1 Mining Sequence, Alton Coal Development, Coal Hollow Mine, C/025/0005, Task #3812

SUMMARY:

On April 18, 2011, the Utah Division of Oil Gas & Mining received an application for an amendment to the Coal Hollow Mine MRP. The amendment includes updates to the mine's Coal Removal Sequence map (5-10).

The updates to the map provide for a change in the mining sequence during the first part of the year 1 mining projection. Pits that were previously numbered 4 -8 were left un-numbered. The mining sequence of these pits will be determined during the mining of pits 1-3. The applicant states that when the sequence has been finalized, an amendment showing the sequence will be submitted to the Division prior to mining.

This memo addresses compliance with the engineering (R645-301-500) section of the Utah Coal Mining Rules.

TECHNICAL ANALYSIS:

OPERATION PLAN

MINING OPERATIONS AND FACILITIES

Regulatory Reference: 30 CFR 784.2, 784.11; R645-301-231, -301-526, -301-528.

Analysis:

Mining operations will not be affected by the change in mining sequence as presented in the amendment. Mining operations will be expected to be conducted as they are described in the MRP.

Findings:

Contents and information provided are sufficient enough to meet the minimum requirements of this section of the Utah Coal Mining Rules.

COAL RECOVERY

Regulatory Reference: 30 CFR 817.59; R645-301-522.

Analysis:

Coal recovery will not be affected by the change in mining sequence as presented in the amendment. The first paragraph on page 5-21 of the MRP states that "A net recovery of 95% (including the effects of in-pit coal losses and out-of-seam dilution) of the coal exposed in the pit is anticipated. Normal losses are expected due to cleaning of the top of the seam, loading losses at the seam floor, and coal oxidation near the outcrop"

The operator has defined the high-sulfur material on top of the coal seam, coal that is lost in the loading process, and the burned material at the outcrop, as coal. This puts it within the 95% recovery range and allows it to be included in the 5% of coal loss that is mixed with backfill.

On page 3 of the Taylor GEO-Engineering analysis (Appendix 5A-1), the subsurface conditions are described as follows: "Sediments are underlain by highly weathered shale ... and

slightly too moderately weathered shale... The shale is underlain by coal deposits." So, according to the geo-tech analysis, the materials below the shale (high sulfur or otherwise) are coal.

Findings:

Contents and information provided are sufficient enough to meet the minimum requirements of this section of the Utah Coal Mining Rules.

HYDROLOGIC INFORMATION

Regulatory Reference: 30 CFR Sec. 773.17, 774.13, 784.14, 784.16, 784.29, 817.41, 817.42, 817.43, 817.45, 817.49, 817.56, 817.57; R645-300-140, -300-141, -300-142, -300-143, -300-144, -300-145, -300-146, -300-147, -300-147, -300-148, -301-512, -301-514, -301-521, -301-531, -301-532, -301-533, -301-536, -301-542, -301-720, -301-731, -301-732, -301-733, -301-742, -301-743, -301-750, -301-761, -301-764.

Analysis:

Acid- and Toxic-Forming Materials and Underground Development Waste

As stated in the MRP, the mining process will include high-sulfur coal that is cleaned from the top of the coal seam and oxidized/burned material found at the coal outcrop being buried in the excavated pits during the backfill process. The amendment is not deficient; however, the following deficiency was identified during the review process:

- **R-645-301-553.140.** The applicant must sample and provide sufficient data as to demonstrate that the presence of high-sulfur coal (cleaned off the top of the seam) and oxidized coal (from near the outcrop) in the backfill will not create a potential for water pollution or damage to the hydrologic balance both on and off the site.

Findings:

Contents and information provided are sufficient enough to meet the minimum requirements of this section of the Utah Coal Mining Rules.

MAPS, PLANS, AND CROSS SECTIONS OF MINING OPERATIONS

Regulatory Reference: 30 CFR Sec. 784.23; R645-301-512, -301-521, -301-542, -301-632, -301-731, -302-323.

Analysis:

The amendment includes updates to the mine's Coal Removal Sequence map (5-10). The map clearly depicts the sequence changes. The map is properly scaled and is certified by a registered P.E.

Findings:

Contents and information provided are sufficient enough to meet the minimum requirements of this section of the Utah Coal Mining Rules.

RECLAMATION PLAN

BACKFILLING AND GRADING

Regulatory Reference: 30 CFR Sec. 785.15, 817.102, 817.107; R645-301-234, -301-537, -301-552, -301-553, -302-230, -302-231, -302-232, -302-233.

Analysis:

First, stability:

The change in mining sequence will not change the reclamation requirements of the pits that are being mined. Backfilling and grading will be expected to be conducted as described in the mine's approved MRP.

A detailed review of the MRP verified that during the initial permitting process, the operator submitted a stability evaluation/analysis for reclaimed (backfilled and graded) slopes. The analysis (included as Appendix 5-5 of the MRP) concluded that the reclaimed backfilled slopes would have a dry safety factor of 2.883, a saturated safety factor of 1.722 and a reclaimed angle of 18.4 (well below the angle of repose ~33-35). The most significant part of this analysis as it pertains to pit water is the saturated safety factor, which demonstrates that the pits can have water present while they are being backfilled and still remain stable. This also demonstrates that the backfill will not require compaction for long term stability.

Findings:

Contents and information provided are sufficient enough to meet the minimum requirements of this section of the Utah Coal Mining Rules.

RECOMMENDATIONS:

The application is recommended for approval at this time. Approval should be granted. The deficiency identified in this memo is requested to be addressed as soon as possible.

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